



FY21 Annual Report to JFSP Covering October 1, 2020-September 30, 2021

Background: Partnership with Alaska Wildland Fire Coordinating Group

The activities of the Alaska Fire Science Consortium (AFSC) have their fundamental basis in AFSC's primary partnership with Alaska's interagency fire management community. This partnership is steered by the 17 member AFSC advisory board, whose membership reflects that of the Alaska Wildland Fire Coordinating Group (AWFCG), the oversight organization for planning and implementing interagency fire management statewide since 1994. AFSC's ongoing collaboration with the AWFCG and its committees includes iterative information exchange to develop AFSC's activities to meet the community's identified fire science needs. AFSC continues to be strongly valued, trusted, and called upon as a resource by this community. Their feedback has been overwhelmingly positive, and they continue to reach out to AFSC for a range of assistance from help desk inquiries and webinar questions to workshop organizing, direct briefings, and trainings.

Success 1: Public awareness products related to climate change

The very active, unusual, and high impact 2019 Alaska fire season rekindled public interest in wildland fire in the region, particularly in the context of climate change. Agency staff, including agency administrators and Public Information Officers (PIO), asked AFSC to assist in updating their information resources targeting the general public, with a focus on climate change. AFSC worked directly with the AWFCG Wildland Fire Prevention and Education Committee (WFPEC), the requesting personnel, members of the AFSC Advisory Board, and communications and climate experts at the University of Alaska Fairbanks (UAF) International Arctic Research Center (IARC) and Alaska Center for Climate Assessment and Policy (ACCAP) to address this need. The centerpiece product from this line of work is *Alaska's Changing Wildfire Environment* (ACWE), released in early December 2020. AFSC science communication specialist Zav Grabinski led the development, review, and revision of this glossy 16 page outreach booklet, which compiles information on the factors contributing to the intensifying patterns of wildland fire in Alaska and is accessible to a general reader. The booklet is available both online and in print and has been downloaded more than 400 times, increasing traffic to the AFSC website by 60% this year. AFSC has distributed approximately 350 printed copies, many of them to managers for use in public presentations or to share with colleagues:

- Beth Ipsen, BLM Alaska Fire Service (AFS) PIO: *BLM Alaska Fire Service staff has used the Alaska's Changing Wildfire Environment publication during community presentations in Eagle and Central because they're a great tool to validate the risk assessment and Community Wildfire Protection Plan (CWPP) work staff is doing in rural Alaska. The publication illustrates the environmental impacts on Alaska's fire seasons and the importance of wild-fire management in a manner that is relatable and relevant to the public.*
- Kent Slaughter, Manager of AFS: *I shared the publication Alaska's Changing Wildfire Environment with the BLM's national Fire and Aviation Leadership Team to give them a better sense of the changes happening in Alaska.*
- Mike Trimmer, Alaska Division of Forestry (DOF) Fire Management Officer (FMO), Copper River: *Alaska's Changing Wildfire Environment was a very useful product for me and I have used some of that information in multiple community and organizational meetings I presented at.*

- Jeff Bouschor, USFWS Southern Refuges FMO: *I see us being able to put these to good use with our ongoing CWPP project and wildfire prevention and education outreach efforts.*
- Anonymous (workshop evaluation): *The publications such as Alaska's Changing Wildfire Environment have proven very useful when briefing new management officials or new employees.*

AFSC led several follow up activities based on ACWE, including:

- A press release based on the booklet, titled “What Alaskans Should Know About Changing Wildfires”, was co-authored by Grabinski and the three top leaders of fire management in the state (Norm McDonald, DOF; Bobette Rowe, US Forest Service; and Kent Slaughter, BLM AFS). The press release was published in early June 2021 as an op-ed in the Anchorage Daily News, the Mat-Su Valley Frontiersman, and the Fairbanks Daily News-Miner, reaching the vast majority of newspaper readers in the state.
 - Tim Mowry, DOF PIO: *Great Op-Ed. I was planning to do something similar but just haven't had the time. I think it's a great way to educate the public and highlight the findings in "Alaska's Changing Wildfire Environment." This is on target because it focuses on wildland fire for the whole state, not from a specific agency point of view... I really like the fact you focused on the findings in the publication and provided the public with easy-to-understand trends that they can relate to.*
 - Norm McDonald, chief of fire and aviation for DOF: *Great op-ed. I'd be happy to use my name if you think it would help. Tim and I have had this on our to do list for the last several weeks. The Alaska's Changing Wildfire Environment document is a great tool. Hopefully the link will be part of the piece as it really tells the story of fire in Alaska. I've shared this with our Commissioner's office as well. Thanks for the work!*
- Grabinski presented on the ACWE material to the interagency fire management community as part of AFSC's spring workshop March 24 (125 participants, video played 15 times) and has also been invited to present to general audiences based on this work:
 - Webinar hosted by the Alaska Climate Action Network June 8 (25 participants)
 - Webinar hosted by the Alaska Forum on the Environment June 30 (25 participants, video played 334 times)
- Planned activities include:
 - Webinar to the In a Time of Change group (artists collaborating with Bonanza Creek Long Term Ecological Research [LTER] scientists on a project called Boreal Forest Stories) planned for November 2021
 - Opportunities for Lifelong Education course at University of Alaska Anchorage planned for October and November 2021
 - Science Pub event sponsored by NSF Alaska Established Program to Stimulate Competitive Research (EP-SCoR), planned for November 2021

A related set of projects in this line of work targeted national and international audiences, both scientific and general, to increase awareness of the interactions of wildland fire in high northern latitudes with climate change. Drawing on an international team of co-authors, AFSC coordinator York led the development of short sidebar articles on the topic for two major annual climate reports: the National Oceanic and Atmospheric Administration's 2020 Arctic Report Card (ARC; December 2020) and the Bulletin of the American Meteorological Society's State of the Climate 2020, Arctic Chapter (August 2021). As part of the ARC rollout at the American Geophysical Union's fall meeting, York presented at an international press conference attended by more than 150 journalists, and several media mentions resulted from this. Additional activities for these projects included a webinar on ARC findings for the Alaska Center for Climate Assessment and Policy (94 participants; December 2020), and Scientific American invited York and AFSC fire ecologist Jandt to contribute an article, published in the October 2021 issue as “Alaska Burning: Wildfire is Transforming Alaska and Amplifying Climate Change”; the infographic in the article is based on data compiled in ACWE.

This success drew on the following **activities from the AFSC 2021-22 Logic Model:**

- Outreach focused on fire management needs
- Serve as subject matter experts at the national and regional levels

The relevant **societal impact categories** are:

- **Conceptual:** We expect that these projects have increased awareness of the interactions of climate change and wildland fire in Alaska and other northern locations in the general public, the fire and resource management community, and the scientific community in Alaska and nationally.
- **Capacity building:** AFSC's management partners have shared that Alaska's Changing Wildfire Environment has been a valuable resource for them in communicating internally and with the public, and AFSC has also found it to be a useful tool; for example, AFSC has shared it with participants at multiple field trips this summer (see success 3 on field trips).

Follow on: collaborative workshop

The success of ACWE and related activities has increased the interest among Alaska's management community for current climate change information. In addition to the planned follow-on activities listed above, AFSC is working in direct partnership with the Wildland Fire Prevention and Education Committee and ACCAP to plan and convene an in-depth workshop on wildland fire and climate change in Alaska targeting PIOs, FMOs, and other management personnel. The workshop is tentatively scheduled for February 2022, and planning is underway for a needs assessment survey of the target audience.

Success 2: Yukon Flats workshop

In early 2021, Jimmy Fox, refuge manager of the Yukon Flats National Wildlife Refuge (YFNWR), asked AFSC to partner with USFWS, the Alaska Conservation Foundation, and the Northern Latitudes Partnerships to organize and convene an online workshop on *Improving Wildfire Management Decision-making for the Yukon Flats National Wildlife Refuge*. The April 2021 workshop brought together researchers, managers, tribal members, and adjacent landowners to explore new decision-making frameworks for fire management under a changing climate. The vision was to increase persistence and resilience of desired habitats on the refuge, while considering integrated impacts on local communities. The 3-day workshop had 16 presenters and 40 participants, including representatives from local communities, and was generally felt to be an effective start to a long-term information gathering and re-evaluation process.

AFSC received leveraged funding from USFWS to support their contributions to the workshop. In addition to serving on the organizing committee, AFSC coordinator York facilitated all workshop sessions in collaboration with a UAF graduate student, another graduate student led the workshop evaluation and surveyed workshop participants, and AFSC communication specialist Grabinski prepared maps and other background resources, both for the workshop and for an outreach publication shared with local communities. AFSC subject matter experts Jandt and Ziel provided their expertise to workshop discussions. All materials for the workshop, including links to the presentations, the workshop agenda, background information, and literature can be found on the AFSC website. AFSC is leading preparation, review, revision and distribution of the workshop report, which is underway.

This success engages all four **activities from the AFSC 2021-22 Logic Model**:

- Outreach focused on fire management needs
- Support collaboration on regional fire science problems
- Serve as subject matter experts at the national and regional levels
- Program evaluation

The relevant **societal impact categories** are:

- **Instrumental:** This workshop provided specific information on a variety of issues requiring detailed understanding to support consideration of changing policies and plans for fire management on the refuge.
- **Conceptual:** Evaluation data from the workshop show that the workshop presentations and discussions increased participants' understanding of the issues, processes, trade-offs, and feasibility of various options and of the information resources needed to support decision making.
- **Capacity building:** The workshop materials provided useful information resources for the refuge staff; the workshop involved two UAF graduate students who gained valuable experience in facilitation, evaluation, and

boundary spanning processes.

- **Connectivity:** The workshop connected multiple communities, including residents on the refuge, refuge staff, academic and agency scientists and managers, and non-profits.

Follow on: AFE special session

AFSC is leading the participation of the workshop organizers in a special session titled The Nexus of Climate Change and Fire: Taking Science to Action at the upcoming Association for Fire Ecology Congress. The workshop organizers will present on the workshop's process and outcomes, participate in a panel discussion, and help in moderating the fire circle. Additional follow on is still TBD, but we will be ready and available if managers request AFSC's assistance with future, similar place-based workshops in other areas of Alaska, as we anticipate to be likely.

Success 3: Field trips and geospatial products

Opportunities for AFSC-initiated field trips have been quite limited in the past, primarily by challenges in scheduling. The fire and snow-free seasons in Alaska are essentially coincident, so it is hard for managers who need to be available to respond to emerging incidents to commit to an event, while scientists and agency staff have competing plans for field data collection and other priorities during the brief Alaska summer. AFSC has started to take a new approach to field trips, with two innovations: serving as a value-added resource for field trips that are organized by others, often on short notice, and collecting documentation during those trips that can be used for geospatial products and other interpretive uses.

Examples of this approach include trips in 2020 and 2021 to the Shovel Creek (2019), Frostfire Experimental Burn (1999)/Haystack (2021), and Yankovich Road (2021) fires, as well as a trip organized by the Yukon Chapter of the Society of American Foresters to fuel treatments installed in 2003 and 2004 at Cache Creek, all near Fairbanks. AFSC communication specialist Grabinski documents these trips with extensive photography and video, including UAV footage, that can be used to develop products such as story maps to share the experience more widely. He is currently working on a story map on burn severity at Shovel Creek in collaboration with UAF scientists and agency staff; he presented a progress report on this to the recent AFSC fall fire science workshop, and it garnered great interest and feedback.

The Yankovich Road fire deserves special mention. This July 2021 fire appears to have been a human ignition in a neighborhood adjoining the UAF research arboretum. This wildland-urban interface fire drew a rapid and effective response due to the numerous values at risk and was suppressed at around 3.5 acres. Most of the fire scar is located on university land, easily accessible by a short walking trail from the parking lot of an established public attraction, the university's Large Animal Research Station, which draws tourists and local visitors including school groups. In partnership with BLM Alaska Fire Service Fire Ecologist Eric Miller, a member of the AFSC advisory board, AFSC organized a field crew of UAF faculty and students to help install fire effects monitoring transects on the site as well as to collect video and UAV imagery. AFSC has returned to the site two more times to host tours for artists participating in the In A Time of Change project.

This success drew on the following **activities from the AFSC 2021-22 Logic Model:**

- Outreach focused on fire management needs
- Support collaboration on regional fire science problems
- Serve as subject matter experts at the national and regional levels

The relevant **societal impact categories** are:

- **Conceptual:** We expect that participating in the field trips or reviewing the related geospatial products has increased participants' knowledge and awareness of wildland fire or fuel treatment impacts at specific locations.
- **Capacity building:** The fire effects transects and geospatial products provide useful information resources; installing the transects enhanced the skills of UAF faculty and students.
- **Connectivity:** The field trips connected multiple communities, including academic and agency scientists and managers.

Follow on: demonstration site at Yankovich Road fire

Because of the Yankovich Road fire site's easy accessibility from an area already frequented by visitors seeking scientific enrichment, as well as the growing public interest in WUI issues, AFSC hopes to develop the area as a demonstration site that could be used for self-guided tours, as well as for training students and agency staff on fire effects monitoring protocols. This plan will require considerable effort and cooperation from several partners, but the idea has been generally welcomed.

Evaluation results

In addition to our ongoing brief evaluations associated with events such as webinars, AFSC found the information generated through the JFSP FSEN evaluation processes led by the University of Nevada Reno (UNR) team very useful in planning and adjusting our program of work in the past. The UNR team gave AFSC permission to re-administer the evaluation survey, which we did in late 2020, following similar protocols and framings to past surveys; AFSC most recently participated in the UNR-led survey in 2016. We received 85 responses: 49 from respondents who identified as consumers of fire science information, 30 as producers, and 6 as landowner/community members. Complete results are available [here](#). The results of the survey are broadly similar to past evaluations, including the following points:

- The effects of climate change continue to be a high priority for all 3 responding communities.
- All 3 groups of respondents find AFSC effective and valuable in supporting their work and improving communication, particularly between managers and scientists.
- Management respondents find all AFSC products (website, list-serv, blog, reference database, research map, presentation archives, research briefs) useful and relevant to their jobs.
- Although management respondents think fire science is important in their work and enhances their effectiveness, they continue to find understanding fire science information and applying it to their specific problems challenging.

These results give us confidence that AFSC is overall meeting our target audience's needs and encourage us to continue our program of work in the same general direction. Quotes from these evaluations include:

On how AFSC can help address climate effects

- *Continuing to study and understand it [climate change] better, also to help communicate it better to a broader audience and increase buy in of its importance.*
- *Continue to support and disseminate research that speaks to the impacts of climate change on fuels, fire behavior, fire effects, and fuels treatment effects.*
- *Serve as liaison with climate scientists who may not understand practical wildfire management.*
- *I appreciate webinars that help me stay abreast of climate change research and present information to me in a clearly understandable fashion. Sometimes climate science literature can get pretty technical, but webinars tailored to fire science tend to be understandable and relevant to my work.*
- *Climate change affects the management community in emergent ways while scientific investigation is proceeding along a by now well-understood portfolio of questions. The encounter of the two has the potential to be impactful on either by adding a new, maybe transformative, perspective.*

On manager-scientist collaboration

- *Working with fire researcher/scientists is an excellent opportunity to ask questions, share information, and promote creativity and innovation.*
- *Essential to understand the usefulness AND the limitations of products and reports.*
- *Collaborating with fire scientists is key in ensuring management work is being done with the best available information available.*
- *Partnering with managers ensures that my research is relevant and gets used. This kind of partnership is the ideal situation for fire science/management.*

General comments

- *Please keep doing what you all are doing, it is very valuable. Having recently left AK I am now especially seeing how important your group and work is and wishing such projects were more widespread nationally.*
- *As a Canadian agency we see AFSC as natural partner with many common interests and challenges. AFSC is one of the models we look to for ideas.*

Staffing

Science communication specialist Zav Grabinski, now beginning his third year with AFSC, is developing a mature understanding of the issues facing fire managers in Alaska and generating extremely valuable and well-received products that are reaching a wide audience. The expertise of AFSC's subject matter experts, Randi Jandt and Robert (Zeke) Ziel, in fire ecology, fire behavior, and fire danger, as well as their exceptional skill in understanding how research can help managers and in building connections between science and management, remained a central strength of the AFSC team in FY21. Ziel, however, has decided to retire, and AFSC will be working with our Advisory Board and others to identify ways to maintain expertise in fire analysis in FY22.

October 29, 2021

Sarah Trainor, AFSC Principal Investigator, University of Alaska Fairbanks

sarah.trainor@alaska.edu 907-474-7878

Alison York, AFSC coordinator, University of Alaska Fairbanks

ayork@alaska.edu 907-474-6964



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2021 Annual Report

Step 3 - Participants by Activity Table

Details	Attachments	Contacts	Budget	Location	Deliverables	Progress	Annual Reports
Other Products	Final Report	Review Summary	Findings				

Project ID: **09-S-04-7**

Status: **Completed**

Title: **Alaska Fire Science Exchange**

Principal Investigator: **Sarah F. Trainor**

Agency/Organization: **University of Alaska-Fairbanks, International Arctic Research Center**

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Reporting Year: **2021**

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Table 1 - Participation by Organization (as shown from your mailing list subscribers)

Organization	Unique Total Number of Participants
Tribal Nations	9
States	70
Counties/Burroughs/Parishes	3
Cities and Local Communities	18
Regional Authorities	0
Private Landowner	13
Private Associations	0
Companies	18
Consultants	10
International	6
University and College Faculty or Researchers	128
University and College Students	44
Prescribed Fire Councils	0
Fire Learning Network and The Nature Conservancy	2

Non-Governmental Organization (not listed above)	29
Bureau of Indian Affairs	11
Bureau of Land Management	71
Fish and Wildlife Service	36
Forest Service (National Forests, Grasslands, State and Private Forestry)	54
Forest Service Research	23
Geological Survey	10
National Park Service	31
Natural Resources Conservation Service	0
US Bureau of Reclamation	0
National Oceanic and Atmospheric Administration and National Weather Service	21
Agricultural Research Service	2
National Aeronautics and Space Administration	2
Department of Defense including Coast Guard	8
United States Fire Administration	0
Federal Emergency Management Agency	0
Environmental Protection Agency	2
Media	2
Other:	32
Canadian agencies and universities	

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2021 Annual Report

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Project ID: **09-S-04-7**

Status: **Completed**

Title: **Alaska Fire Science Exchange**

Principal Investigator: **Sarah F. Trainor**

Agency/Organization: **University of Alaska-Fairbanks, International Arctic Research Center**

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Reporting Year: **2021**

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Table 2 - Participation by Activity

Activity (conducted, hosted, organized, facilitated, sponsored or produced)	Completed Activities (current year)	Estimated Total Number of Participants (current year)
Talks and Personal Briefings About The Exchange	6	140
Newsletters Produced	17	649
Fact Sheets and Handouts Produced	5	150
Tweets	38	1024
Facebook Postings	112	719
Other Social Media (please identify)	0	0
Blog Posts	5	400
Webinars	5	150
Guidelines or Guidebooks	1	400
Syntheses	3	15000
Database	1	100
Conferences/Workshops	3	340
Conference or Symposia Presentation (note participants are for the	8	400

talk not the entire conference)

Poster Presentation (note persons engaged not the entire conference)	<input type="text" value="1"/>	<input type="text" value="25"/>
Short Courses and Continuing Education Units	<input type="text" value="1"/>	<input type="text" value="25"/>
Academic Credit Courses	<input type="text" value="0"/>	<input type="text" value="0"/>
Bibliography or Annotated Bibliography	<input type="text" value="1"/>	<input type="text" value="100"/>
Video/Vimeo productions	<input type="text" value="42"/>	<input type="text" value="921"/>
Requests for Information, Assistance, or Referrals	<input type="text" value="75"/>	<input type="text" value="275"/>
Field Trip, Tour, Demonstration or Roadshow	<input type="text" value="4"/>	<input type="text" value="25"/>
Field Consultations and Expert Cadres	<input type="text" value="6"/>	<input type="text" value="40"/>
Training Sessions	<input type="text" value="1"/>	<input type="text" value="25"/>
Leadership Briefings	<input type="text" value="2"/>	<input type="text" value="15"/>
Podcasts	<input type="text" value="0"/>	<input type="text" value="0"/>
Other:		
<input type="text" value="peer reviewed publications"/>	<input type="text" value="4"/>	<input type="text" value="800"/>

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